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A dissertation  
on  
Cyanus Trachealis  
for  
the Degree  
of  
Doctor of medicine  
in  
the University  
of  
Pennsylvania  
by  
Lewis Drake  
of  
New Brunswick  
New Jersey

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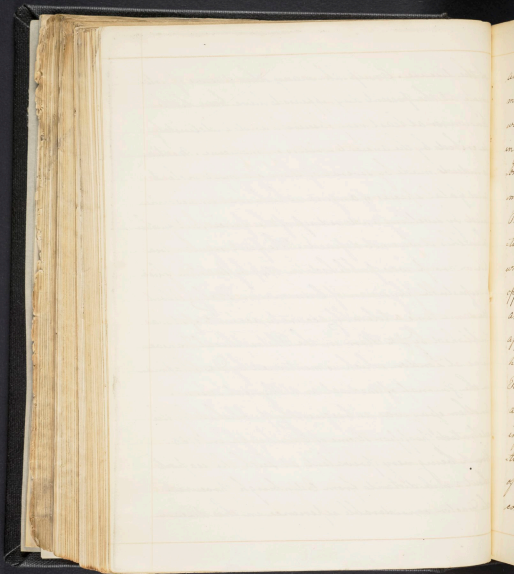
Philadelphia January 8. 1829



In compliance with the laws of this University which require the candidates for medical honours to present to the faculty for examination a thesis on some medical subject, I have selected *Cynanche Strachalis* for the theme of the following brief essay. My motive for making this choice is not that I have any thing new to offer in addition to the excellent treatises which have been published on this distressing malady, but on the contrary because I consider this the best and most effectual means of acquiring a correct and thorough knowledge of a disease which too often baffles not only the young practitioner, but even the skill of the most experienced. Another reason for my making this selection is that since the commencement of my medical studies I have had the opportunity of witnessing several cases of croup, one of which I will take the liberty of detailing in another place being calculated I think to confirm certain views entertained of the pathology



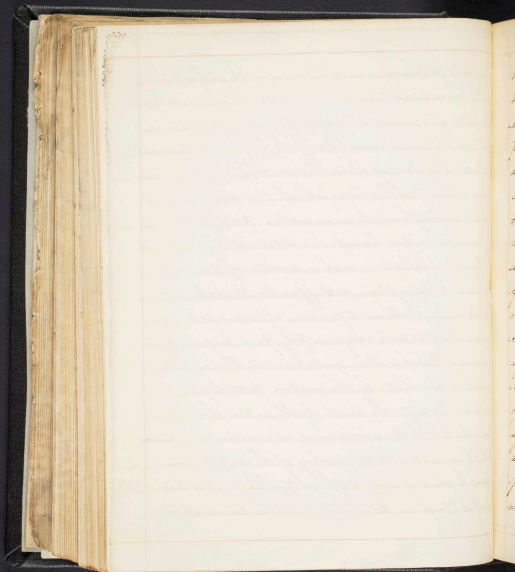
of the disease. Croup, like many other diseases of notoriety at the present day, appears to have been little known, or at least very obscurely and indefinitely described by the ancient writers on medicine. Mention is indeed made by several of them of a most violent and fatal species of angina which was unaccompanied by swelling and redness of the fauces, but further than this it was not defined. The first regular treatise on croup was published in 1744 by Martin Ghisli a respectable physician of Cremona in Italy. About the same time a tolerably accurate account of it was published by Dr Hare in the Philosophical Transactions at London which is mentioned by Dr Chapman in the Journal of Medical and Physical sciences. Another essay was subsequently published by the celebrated Joseph Home of Edinburgh in 1765. Croup being very prevalent at Leith the seaport about a mile distant from Edinburgh procured the Doctor considerable experience in this disease



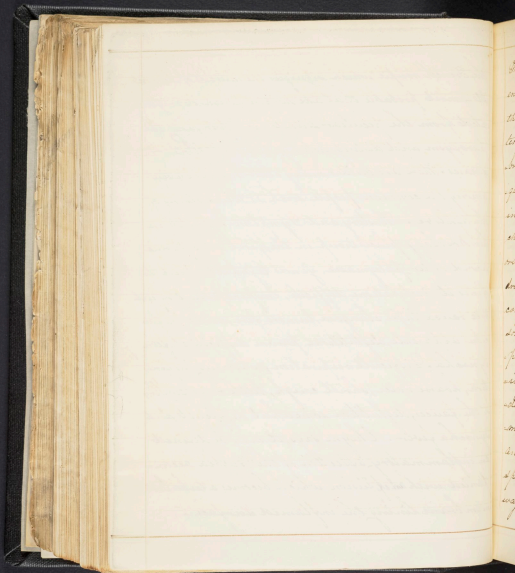
and furnished materials for his work. In 1778 a more extensive and detailed account of this disease was published by Frederick Michaelis of Göttingen in Germany entitled "*De angina polyposa sive membranacea*" in which he relates the history and treatment of a number of cases that came under his notice. But for the most accurate and scientific description on Croup we are indebted to Dr. John Cheyne who from his residence at Leith possessed the same opportunities in practice as his predecessor Home and who has added a minute detail of the morbid appearances of several dissections which came under his inspection. In this country the distinguished Rush, in the first volume of the *Medical Observations and Inquiries* has left a dissertation on the *Asthma infantum spasmodicum* which appears to be identical with Croup, though agreeably to the opinion of some it is a totally distinct disease and ought to come under a different class. Professor Chapman



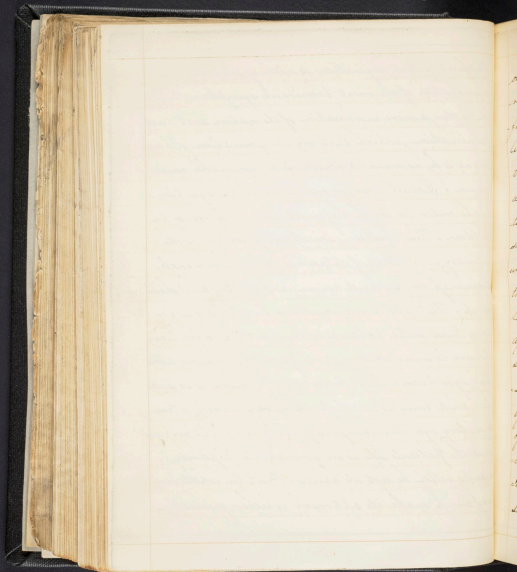
in 1821 favoured us with his views on the subject in a paper entitled "Thoughts on the Pathology and treatment of Cynanche Trachealis," and published in one of the early numbers of the Journal of medical and physical sciences. Besides these there are many other publications which it would be tedious and superfluous to enumerate. Names. By systematic writers Croup has obtained a great variety of appellations, each indicative of some concomitant symptom, as Suffocatio Stridula, Asthma Infantum, Asthma Infantum spasmodicum, Cynanche Stridula, Angina Polyposa, Angina Epiglottidis, Morbus Strangulatorius &c. It has been called Tracheitis by the modern pathologists, and this is perhaps the most eligible as it is short, and indicates the true seat and character of the disease. With regards to the Etymology of the vulgar term croup there is some difficulty. Chayne says it is called Roup in Edinburgh, and he derives it from



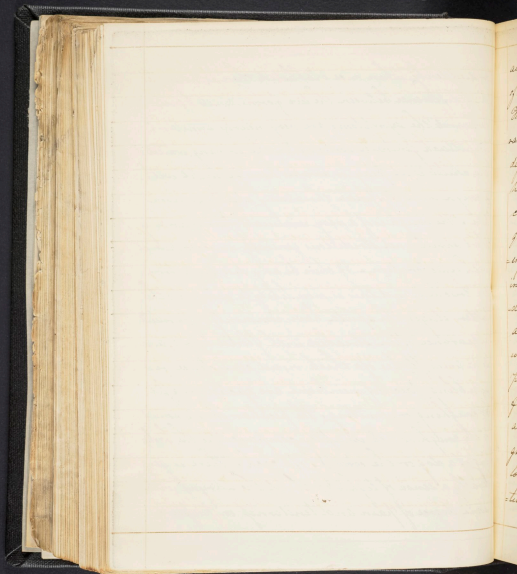
the French *croup* which signifies the mucus of the non.  
It is most probable that like whooping cough it originates from the peculiar sound accompanying the paroxysm and distinguishing it from all other diseases. There are besides many other names in use among the common people such as *Wine*, rising of the light &c. History and Symptoms. Cullen in his *Rosology* places Croup in the first class Pyrexia second order phlegmasia, genus Cynanche and defines it *Respiratio difficilis, inspiratione strepitante, voce rauca, lusi clangora, tumore fore nulla in faucibus apparente, deglutitione parum difficili et febri synocha*. Difficult respiration, whirring inspiration, hoarse voice, shrill cough, little or no swelling of the fauces, deglutition somewhat difficult and synocha fever. Cheyne says, it may be defined an inflammatory affection of the trachea accompanied with an effusion which becomes a tubular membrane lining the inflamed surface.



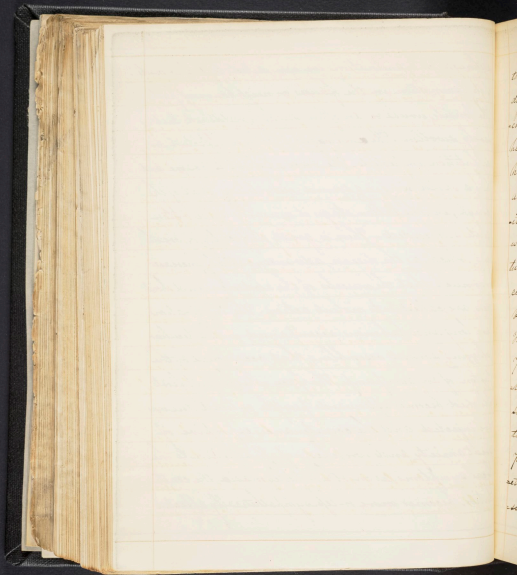
The first of these definitions is nothing more than an enumeration of the most prominent symptoms; and the latter, a mere enunciation of its native seat and termination, which last viz. the formation of a membrane is by no means a constant or invariable consequence. I shall now proceed to detail the symptoms in the order in which they most commonly occur in children. This disease is sometimes preceded by the ordinary symptoms of catarrh, such as hoarseness, croupiness, coryza and an unusually dry and shrill cough. The patient may continue in this state for some time until a change of temperature or fresh exposure to some exciting cause gives rise to more alarming symptoms. But frequently its onset is so sudden and unexpected that we have scarcely a premonitory symptom (excepting perhaps a slight dyspnoea) and the patient's life is in immediate jeopardy, if speedy relief be not at hand. But in whatever way croup makes its approach, whether gradually,



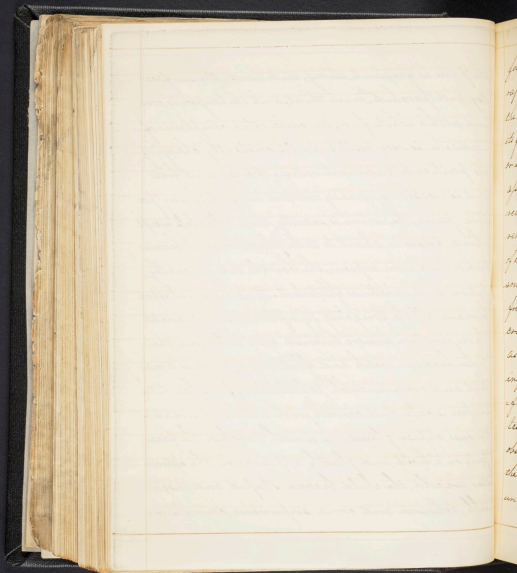
or suddenly, when once established there is no material difference between the two forms, and hence forward the symptoms are very nearly similar. An attack generally comes on in the evening whilst the child is at play, or awakes him at night with a cough and dyspnoea threatening speedy suffocation. The cough is of a very unusual character being short shrill and stridulous generally unaccompanied with expectoration. If there be any discharge from the trachea, and this is more likely to occur in the latter stages, the sputa have commonly a purulent appearance often streaked with florid blood, and sometimes flakes of a thick viscid consistence resembling pieces of membrane are ejected in a fit of coughing or vomiting. The peculiar sharp sound of the cough is not unsuaptly compared to the barking of a dog or the whining of a cock. There is generally a sense of tightness about the Larynx with some degree of pain and tenderness on pressure,



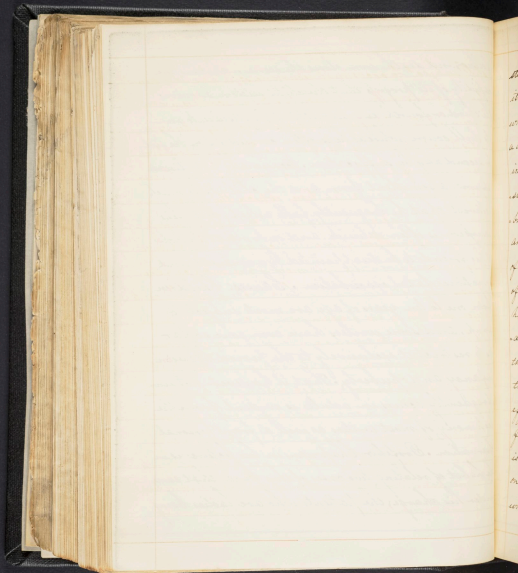
although on examination we can detect but few marks  
of inflammation in the fauces or neighbouring parts.  
The tonsils, uvula &c are often slightly reddened but  
rarely swollen. The ~~esophagus~~ esophagus is seldom affected or  
dilatation impeded. The voice at first is hoarse and  
has a shrill ringing sound resembling that of the  
cough, in the latter stages it is nearly and often  
quite suspended. There is great difficulty of breath-  
ing which, as the disease advances, rapidly increases  
inasmuch that the muscles of the abdomen and should-  
ers are called into violent action. The inspirations  
are long and laborious accompanied with a peculiar  
whizzing sound resembling that occasioned by the  
piston of an air pump. The face which is at first  
flushed becomes afterwards purple or livid, the eyes  
are injected and the countenance expressive of  
great anxiety and wretchedness. In addition to the  
local symptoms, as in other phlegmasia, the consti-  
tution becomes more or less sympathetically affected



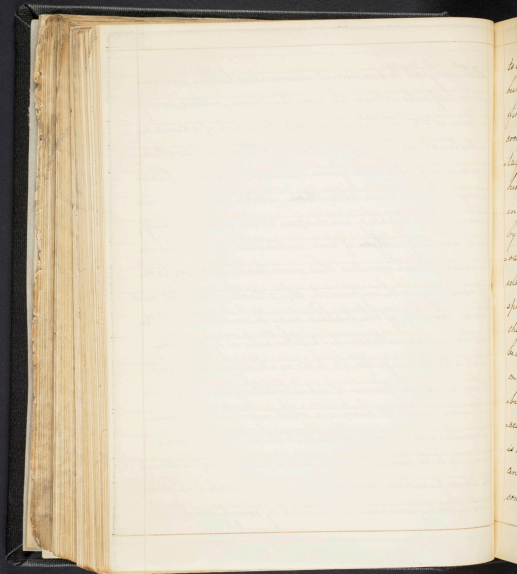
the pulse is frequent, strong, and hard, the surface dry and parched, <sup>with</sup> much thirst, and the tongue is covered with a white fur; the child often complains of headache is very restless and is constantly changing his position but without relief; he cries and frets and is excessively uneasy without suffering any positive pain, the urine is scanty and colourless except when a crisis is about to take place, when it becomes turbid and more copious, the bowels are generally costive and sometimes flatulent. If no remedial efforts be made all the foregoing symptoms are aggravated. The respiration is more hurried and labious, the pulse becomes weak and fluttering, there is a violent and even audible palpitation of the heart, the surface is cold and covered with a clammy sweat, the eyes appear glazed, the mouth parched, the face puts on a livid and ghastly appearance, the extremities are cold, the child becomes stupid and insensible, delirium and coma supervene, convulsions



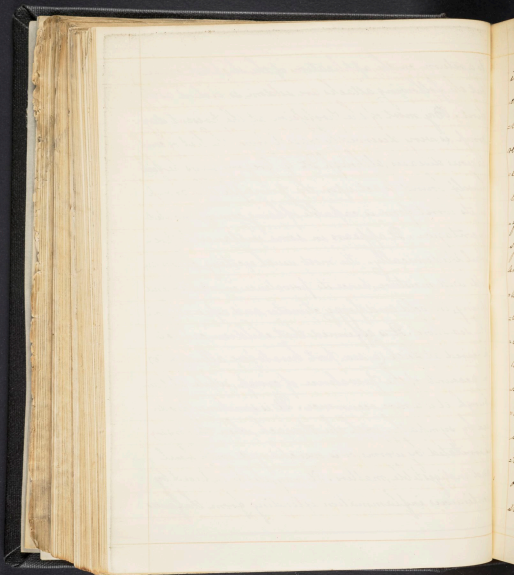
follow, and death soon closes the scene. Such is the rapidity of its progress that the child seldom survives the third or fourth day, admitting the disease to run its full course, whereas he is often carried off on the first or second day by suffocation. Occasionally this disease assumes a remittent form, and the child is so much relieved that he frequently falls asleep, but this remission is often delusive, and only raises the hopes of his friends to be disappointed by a renewed and sometimes fatal exacerbation. Causes. Children from one to ten years of age are most subject to croup, and some writers have even gone so far as to restrict it exclusively to the period between infancy and puberty. That it however not unfrequently occurs in adults is evident from the testimony of most writers as well as from personal observation. Professor Chapman in his lectures is in the habit of relating two cases of this kind that came under his charge; the patients who are ladies being



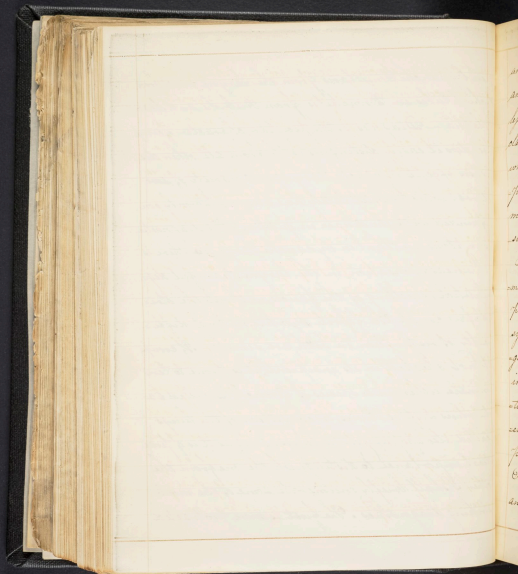
still subject to occasional recurrences; he has also seen it in infants within the month. Some writers, among whom is Dr. W. Philip makes the group of adults, a distinct variety of the disease. The comparative immunity of adults from this disease is very plausibly ascribed to an alteration which the mucous membrane of the trachea undergoes at the age of puberty and an acquisition of tone, indicated by the change of voice which renders this membrane more capable of resisting with impunity the attacks of morbid agents hence debility of the trachea may be considered the predisposing cause to croup. Michaelis is of opinion that adults are as liable to it as children, but that they have the power of expectorating the lymphatic effusion before it becomes a solid membrane. Some families are more subject to it than others, hence it is said to be hereditary, and this also probably depends on some peculiar conformation of the trachea. Children who have experienced an attack of croup are liable



to a return on the application of the slightest cause  
but the following attacks are seldom so violent as the  
first. By most of the profession at the present day  
croup is very deservedly erased from the list of con-  
tagious diseases, although Dr. G. Gregory says he feels  
himself bound to act upon the principle that croup  
in its vocal form is capable of being communicated  
by contagion. It appears in some instances to pre-  
vail epidemically. The most usual exciting causes are  
cold, and moisture, hence its prevalence in winter and  
spring, in cold and foggy climates, and especially on  
the sea shore. It is affirmed that children cannot  
be reared at Lich (a sea port hitherto alluded to)  
on account of the prevalence of croup, while at Edin-  
burgh it is a rare occurrence. It is sometimes pro-  
duced by sympathy with the stomach, when this organ  
is irritated by worms, or is overcharged with foul  
and indigestible matters. It may also be induced by  
continuous inflammation extending from the fauces

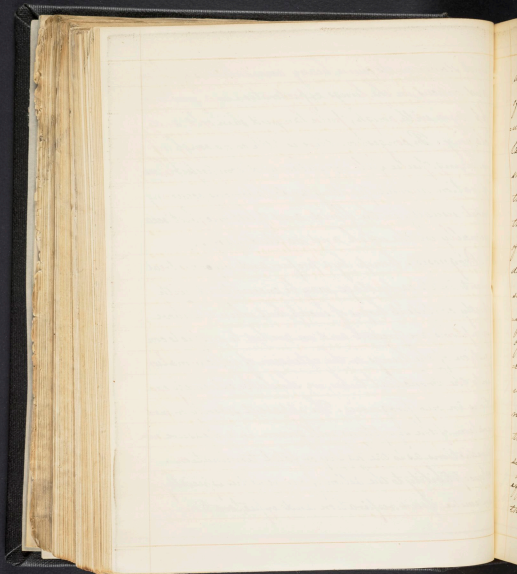


in Cynanche Tonsillaris from the larynx and bron-  
chial tubes in Bronchitis from Rubella and Scar-  
latina. — Diagnosis. The peculiar character of croup  
renders it easily distinguishable from all other dis-  
eases except Cynanche Laryngea a variety of sore  
throat which until lately has been uniformly con-  
founded with the disease in question. The diagnostic  
symptoms are, that in Cynanche Laryngea there is  
an uneasy sensation in the larynx, painful deglu-  
tition, swelling of the fauces without the strid-  
ulous cough the febrile symptoms and diffi-  
culty of respiration in both are similar. If croup  
be not checked in its incipient <sup>stage</sup> it is prone to ter-  
minate either in a species of Bronchitis called la-  
tarrhus suffocativus, or congestion of the lungs  
called also apoplexy of the lungs; and as it is of prac-  
tical importance to distinguish the one from the  
other I shall briefly enumerate some of the most  
striking diagnostics. The first is more protracted

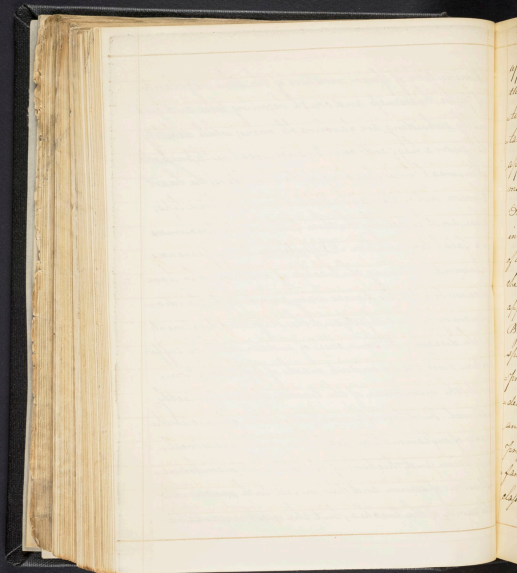


and slower in its course, heavy accumulations of phlegm and mucus in the lungs, expectoration in a greater or less degree with cough, pulse languid, skin cold, and clammy. In congestion there is little or no cough, no wheezing, pulse full irregular and compressible, respiration hurried panting and laborious, occurring most usually in the florid and plethoric, but occasionally in the weak and valctudinary. -

Prognosis. Croup by a proper and vigorous treatment in its early stage, may be encountered with pretty confident hopes of success, but when the above symptoms are present and we are led to suspect congestion of the lungs, or the extension of inflammation into the bronchial tubes, we should be extremely cautious in our prognosis. The apparent severity or moderation of the symptoms will govern in a measure our predictions, as to the happy or fatal termination. Susceptibility to the action of our remedies especially an emetic, for respiration and expectoration



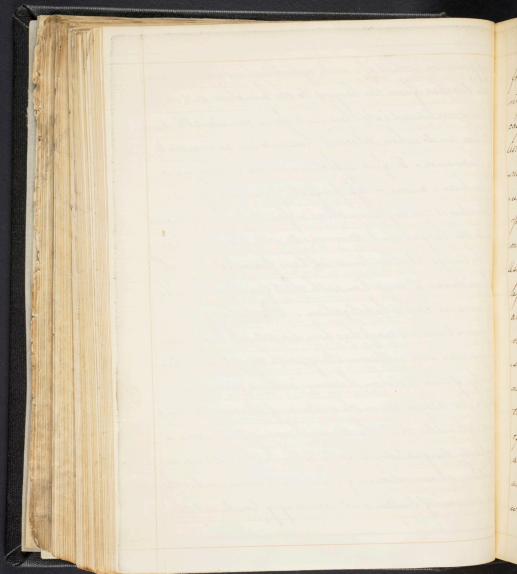
diminution of fever, moisture of the skin, regularity of pulse, hoarseness and cough becoming loose and gradually subsiding are favourable omens; while debility, languor, a haggard countenance, great restlessness, cold skin, weak pulse, heaving of the shoulders, the heart thrown out of its natural situation, and livid lips, these, and especially the three last, are the precursors of a fatal termination. Dissections. The appearances discovered on opening the trachea of children who have succumbed to this disease vary according to the idiosyncrasy of the subject, and the stage and treatment of the disease. In some cases of sudden death by suffocation, there are no evident marks of inflammation, while the membrane of the trachea appears perfectly natural. In others of a more protracted character the traces of inflammation are plain and unequivocal, suffusion and thickening of the lining membrane, effusions of serum and pus mixed with mucus into the cavity of the trachea, but the most remarkable



appearance is that of a white cylindrical membrane lining the trachea from the larynx to the bronchia and sometimes continued into these last for a considerable distance and when detached presents an arborescent appearance. In five dissections made by Cheyne a membrane more or less perfect presented itself.

Sometimes the inflammation is found to have extended into the larynx and downwards into the substance of the lungs, at other times we have presented to us all the evidences of congestion with that peculiar liver-like appearance called hepatization. Pathology.

By most writers croup has been divided into two species, spasmodic and inflammatory; with regard to the propriety of this division, however authors are much divided. Dr Cheyne denies the existence of spasmodic croup and intimates that the disease bearing this name is properly designated the acute asthma (the asthma infantum spasmodicum of Rush) and comes under the class nervous of Cullen and accordingly points out the



following diagnosis. — In croup the cough is constantly ringing in our ears; in acute Asthma there is little or no cough. — In croup there is seldom any remission; in acute Asthma the remission is one of the most striking phenomena of the disease and is attended with some evacuation as belching, vomiting or purging. In croup the pulse is strong, the urine highly coloured, the fever is much greater, the voice is sharp and small; in acute Asthma the pulse though perhaps equally quick is less full, the urine is limpid and the voice, croaking and deep. Professor Duverney in his elaborate and very valuable work on the diseases of children expresses himself on this point in the following words: "We have never witnessed spasmodic croup, we do not believe in the presence of spasm in either of the two first stages of this complaint, it may take place says he and probably does sometimes in the last." — Dr George Gregory admits the existence of the spasmodic kind either distinct which he calls spurious croup and which he thinks



often arises from a foul state of the stomach or a high degree of irritability in the child's system, or complicated with the inflammatory species, and either producing it or supervening on it, but from several considerations he concludes, that no great degree of pathological importance is to be attached to the distinction. Professor Chapman also in his lectures very clearly and explicitly distinguishes the two species, and believes that in all cases where it attacks suddenly it partakes of the nature of spasm, but admits that the two are often complicated and that the inflammatory is often a consequence of the spasmodic, and concludes by saying that no important practical deduction can be drawn from this distinction, as bloodletting is the best remedy both for spasm and inflammation. On the other hand Dr Cheyne and other European writers depend on the use of antispasmodics such as castor, musk, asa fetida &c when the case is purely spasmodic. It is evident from what has been said, that the profession is much



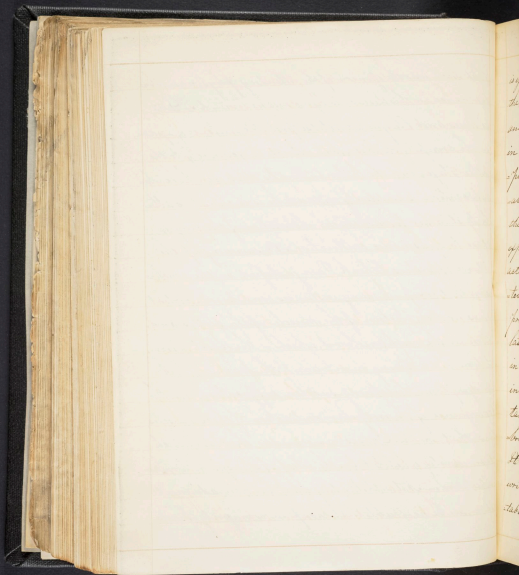
divided with regard to the pathology of this disease. I have formed an opinion upon this point from the few cases which I have had an opportunity of witnessing, it would be in concurrence with those who consider it sometimes spasmodic. One case in particular which has so frequently come under my own observation would seem I think to justify this opinion. The case to which I allude is a member of my father's family, who has been for a number of years (and still continues to be though less frequently) subject to occasional attacks of this disease. It invariably comes on in the evening with little or no premonition and often without any evident exposure to the exciting causes. The first evidence of its approach is a hoarseness resembling a common catarrh which is very soon followed by the shrill stridulous cough, dyspnoea and the other symptoms already detailed, and in a few minutes after the first symptom the paroxysm sometimes is completely formed. The remedies usually resorted



to in its first appearance are ether, brandy &c which have often succeeded in arresting its progress, but when these fail recourse is had to the more certain & unequivocal remedies of blood letting, emetics, or the warm bath which never fail in speedily relieving the spasm, and the distressing symptoms soon disappear. The duration of a paroxysm is from one to three hours. The supporters of the opposite opinion will hardly contend I think, that there was anything like the ordinary marks of inflammation manifested in this case as it is comparatively a slow process. The suddenness of the attack, the urgency of the symptoms, and the short duration of the paroxysm are all easily explained on the principle of spasm. Those who consider the cough of adults as a different species will in this way find a ready explanation of these phenomena - others might be inclined to doubt whether the case in question was one of genuine croup, and whether it was not essentially a case of Asthma; on this point I can only observe

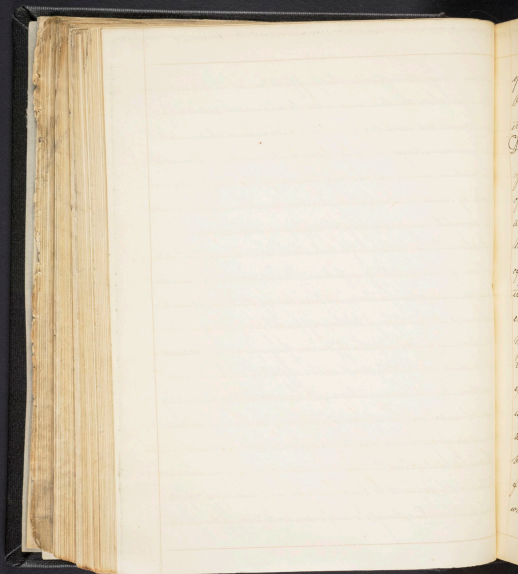


that such was the opinion of the attending physician whose experience in this disease is by no means limited. Drs. Duveroy and Cheyne admit the probable existence of spasm in the cramp of children, but restrict it exclusively to the latter stage, and the latter intimates that even here when suffocation is suddenly induced he is inclined to attribute it rather to mechanical obstruction of the larynx than to spasmodic constriction. On summing up the evidence of writers I think I am justified in the conclusion that croup in many instances consists in a violent spasmodic affection of the muscles of the glottis and those in the neighbourhood, which is the effect of irritation of the lining membrane of the trachea, that the symptoms threatening sudden suffocation are the consequence of the irregular contraction of these muscles and that in these cases our remedies should be such as are usually exhibited for the relief of spasm in similar affections. — Notwithstanding what has been advanced there can be no doubt that croup in a majority of cases



is essentially an inflammatory affection, and this is always the case when the disease makes its approach gradually, and without sensible remission. Inflammation ends in various ways: It may terminate in resolution, suppuration, or the effusion of lymph. The most favourable of these is resolution, and when this takes place the symptoms gradually disappear without much expectoration. When inflammation is more violent the action of the secretory vessels is altered and fever is excited; this is a common termination owing to the peculiar proneness of this tissue to the suppurative process. The last termination, viz. the effusion of lymph rarely occurs in the mucous tissues, and is the effect of violent and inordinate inflammation; it however occasionally takes place in croup, constituting the tubular membrane so frequently mentioned in this disease.

It would be difficult to reconcile the contrary opinions of writers with regard to this membrane: Some very respectable authorities deny its existence, and they found their



opinion on the result of many post mortem examinations  
Others, consider it so usual an occurrence as to, make  
it constitute a part of their definition of the disease  
Dr. Thomas opinion, as to its nature, was that it consisted  
of inspissated mucus, the thinner parts being carried  
off by expectoration, and the remainder being concreted  
and rendered solid by the passage of the air. —

Michaelis has attempted to prove that it is of the nature  
of polypii and differs from them in nothing else, but  
its cylindrical form. It would be superfluous to  
enter into a discussion of the merits of these several  
hypotheses. It is now I believe universally conceded  
that the adventitious membrane does occasionally  
exist, that it is composed of coagulable lymph and  
is the effect of the adhesive stage of inflammation  
differing only in this respect, that the effused lymph  
becomes detached from the secreting surface and  
floats loose in the trachea. It is generally a tough,  
white, tenacious substance of more or less density and is



never organized, no vessels having ever been discovered in it. It is said to act sometimes like a valve in the larynx mechanically obstructing respiration.

### Treatment

With a view to the treatment of croup it has been divided by Dr Cheyne into two stages, the incomplete or inflammatory in which the membrane is not yet formed and the complete or purulent in which the membrane is completely formed. To these Dr DeWees has added a third viz. the forming stage in which the patient complains only of hoarseness cough and the other symptoms of common catarrh. In the first or forming stage there is merely an irritation of the lining membrane of the trachea being the primary effect of cold or other exciting causes.

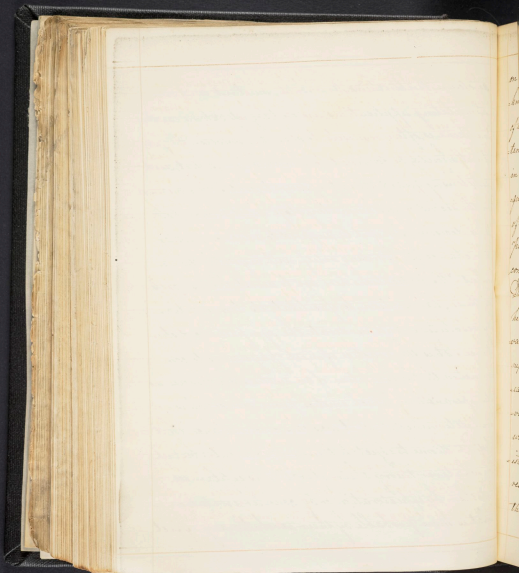
In the second or inflammatory of Cheyne the irritation is succeeded by inflammation which if it be not speedily arrested will terminate in suppuration and the effusion of lymph constituting the third or



purulent stage. Unfortunately for the patient the physician has rarely an opportunity of witnessing the disease in its forming stage and Professor Duverney justly remarks it is too apt to be neglected, and regarded with the same indifference as common catarrh; indeed in many cases it would be difficult to determine whether more serious consequences were about to follow; it is however always preferable to be on the safe side, and to commence immediately on the appearance of the least hoarse ness, or croupy cough with our remedies for its relief. The indications are first to promote the secretion of the trachea by exciting the vessels to healthy action - second, to establish counter irritation on the external parts. The first indication is best answered by the expectorants, and of these, perhaps the best is the decoction Senega or Cox's hive syrup, though some prefer the Alguil or Antimonial in nauseating doses. To meet the second indication the subacutents, such



as steam turpentine, ammonia, mustard and other stimulating applications, are employed. Some laxative medicine is often requisite to open the bowels. The patient should be confined to a mucilaginous diet, and sedulously guard against exposure to cold. Our measures in the second or inflammatory stage must be more bold and decisive; for if it be suffered to advance further our chance of affording relief will be greatly diminished. The indications here are to arrest the progress of the inflammation, to facilitate its termination by resolution, and moderate the sympathetic disturbance. It is the practice of most physicians to commence with the exhibition of an emetic. The precise modus operandi by which emetics prove serviceable is not well determined, and it was this circumstance that led Dr. Hume to object to their employment: but upon whatever theory their operation is explained whether by expectoration or by counter irritation or what is more probable by their revolutionary effect



on the system, their general utility is universally acknowledged, and sanctioned by the best Practitioners of the present day. For this purpose the tartaric of antimony is usually selected, and should be administered in small doses frequently repeated. It will not unfrequently happen, however, on account of the insensibility of the stomach, that this practice will not succeed in producing the desired effect. In such cases it should be conjoined with Calomel and Opacuanha which says Dr. Chapman will rarely fail to meet our anticipations he also recommends the warm bath as a valuable adjuvant in promoting the operation of the medicine. We must resort to blood letting which of all remedies in this disease undoubtedly holds the highest rank and is deserving of the greatest confidence, notwithstanding Dr. Rush was of opinion, that unless symptoms of Pneumonia existed blood letting is never beneficial, and Dr. Dewees restricts the practice exclusively to those cases in which the arterial action is much exalted; while Dr. Chapman



and many others place unlimited confidence in the remedy and rely on it almost totally for the cure of the disease. As to the quantity necessary to be drawn we must be governed altogether by the age and habit of the patient and the effects produced. The jugular vein on account of its nearness to the diseased part is sometimes selected for the operation and when it can be readily opened is undoubtedly to be preferred; the orifice should be large in order if possible to induce syncope which is a desirable object and it should be repeated until decided relief be afforded. The age of the patient should not deter us from employing fire depletion. It is said that children bear venesection better than adults. In aid of the remedies already mentioned the warm bath is highly recommended, there are however not wanting others who entertain a different opinion and who consider it at best an equivocal and dangerous remedy. It is a very popular remedy and when properly managed there can be little doubt of its utility. A proper attention to the



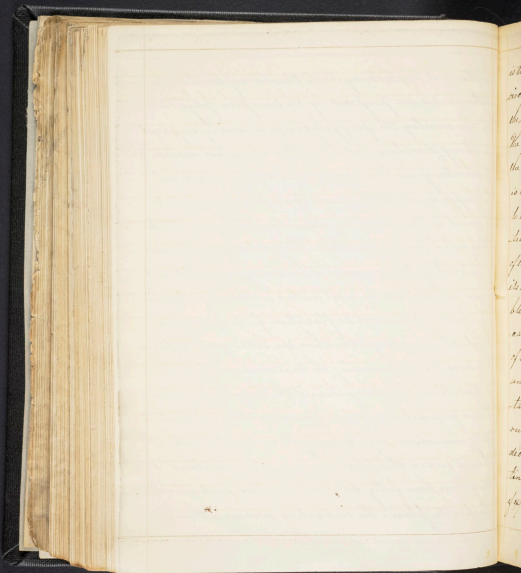
state of the primæ viæ is not to be neglected; as a purgative  
cathartic is always to be selected; by Dr. Rush it was even  
thought to possess a specific power independent of its ca-  
thartic effect. In order to facilitate expectoration several  
medicines of this class have been employed of these the  
decoctum iunega or hive syrup deservedly holds the high-  
est place. The antimonials in nauseating doses have  
already been recommended, they are serviceable also in  
promoting diaphoresis; the squills, and Gum ammoniac  
have been mentioned, but they seem to be of too irrita-  
ting a character to be beneficial in this stage of the dis-  
ease. Opium has been administered with a view of  
allaying the cough, but great caution is necessary in its  
employment. — We come now to a class of remedies (I mean  
the antispasmodics) whose employment is restricted ex-  
clusively to the spasmodic form of the disease. Dr.  
Miller places great confidence in the apapateide of which  
he administered ʒi in 48 hours to a child of sixteen months  
Dr. Chapman as I have mentioned relies principally on



blood letting for the relief both of the spasm and inflammation. We have now enumerated the principal general remedies deserving of notice. The local means now to be mentioned constitute an essential part of the treatment. Topical bleeding by cups or leeches has by some been highly recommended: The former should be applied to the sides or back of the neck, the latter to the external fauces. After due evacuations a blister to the neck will be highly useful. The topical means of promoting expectoration such as inhaling the steam of warm water or vinegar and water are sometimes productive of happy effects. With regard to the treatment of the third stage of croup little need be said, for unfortunately little can be done. The indications are first to get rid of the membrane or purulent matter obstructing respiration, and secondly to moderate the inflammation with a view of preventing the formation of more, and to support the sinking strength of the patient. To facilitate the discharge of the membrane two remedies have been resorted to



emetics and Tracheotomy. As to the choice of emetics, the  
antimonials, are preferred by the European physicians  
in this country the ipecacuanha is usually employed  
in strong decoction and large doses. As a last resource  
Tracheotomy has been recommended and practised, but  
unhappily with little success; perhaps one reason, of its  
frequent failure, is its being deferred until there is little to  
be expected from an operation. Performed with the view  
of extracting the membrane it has rarely succeeded and  
is now, condemned by most writers on the subject: When  
the object is to prevent suffocation from spasmodic  
contraction of the glottis there are better grounds to hope  
for success. Concerning the treatment of catarrhus  
suffocativus and congestion of the lungs (before alluded  
to, as a frequent consequence of croup,) will be my con-  
cluding remarks on this disease. It is not requisite that I  
should give in this place the diagnostic symptoms as  
they have been fully detailed in another and more ap-  
propriate place. The indication now in either case



is to relieve the oppressed lungs, and to establish an equal circulation. The best means of accomplishing it is to place the child in a warm bath, and whilst there to vomit freely. The sulphate of zinc has been warmly recommended, though the last of antimony with calomel and opoeacuanha is decidedly to be preferred. The juice of garlic also is said to be deserving of attention. In the congestive stage venesection is cautiously to be employed, owing to a peculiar state of the lungs in this disease which almost deters us from its employment. When the lancet is forbidden topical bleeding may be substituted with advantage. The vesicatory applications are not to be neglected in this form of the disease. A blister should be applied over the breast and in very urgent cases, it is proposed as a more certain and decisive means of producing it, to apply cloths rung out of hot water, or pledgets of lint dipped in a decoction of cantharides made with the spirit of turpentine. The subsequent treatment consists principally in the use of expectorants, such as have been already mentioned.

